THE PROCEEDINGS OF THE PHYSICAL SOCIETY

FROM JANUARY 1947 TO NOVEMBER 1947

VOLUME 59

Published by
THE PHYSICAL SOCIETY
1 Lowther Gardens, Prince Consort Road,
London S.W.7

Printed by
TAYLOR AND FRANCIS, LTD.,
Red Lion Court, Fleet Street, London E.C. 4

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CONTENTS

Part 1. 1 *January* 1947

PAGE

Portrait of Professor D. BRUNT, M.A., Sc.D., F.R.S., President of the Physical Society, 1945–47 . . . . . *frontispiece*

A. C. MERRINGTON and E. G. RICHARDSON. The break-up of liquid jets . . 1

DAVID OWEN. The lines of force through neutral points in a magnetic field . . 14

P. VIGOUREUX. Sensitivity and impedance of electro-acoustic transducers . . 19

H. FRÖHLICH and R. A. SACK. Light absorption and selective photo-effect in adsorbed layers 30

Corrigendum 33

W. B. LEWIS, F.R.S. Fluctuations in streams of thermal radiation . . . 34

C. R. BURCH, F.R.S. Reflecting microscopes 41

C. R. BURCH, F.R.S. Semi-aplanat reflecting microscopes 47

S. PATERSON. The heating or cooling of a solid sphere in a well-stirred fluid . . 50

Sir EDWARD APPLETON, F.R.S. and W. J. G. BEYNON. The application of ionospheric data to radio communication problems: Part II 58

E. F. DALY and G. B. B. M. SUTHERLAND. An infra-red spectroscope with cathode-ray presentation 77

J. C. JAEGER. Equivalent path and absorption in an ionospheric region . . 87

W. J. G. BEYNON. Oblique radio transmission in the ionosphere, and the Lorentz polarization term 97

H. G. HOWELL. On the spectra of CS and CSe 107

F. A. B. WARD. A simple optical model demonstrating the principle of the Bragg x-ray spectrometer 111

F. A. B. WARD. A mechanical model illustrating the uranium chain reaction . 113

DEREK J. PRICE. The emissivity of hot metals in the infra-red 118

DEREK J. PRICE. The temperature variation of the emissivity of metals in the near infra-red 131

A. R. UBBELOHDE. The freezing-in of nuclear equilibrium 139

M. L. OLIPHANT, F.R.S. Rutherford and the modern world 144

DISCUSSION on paper by E. W. H. SELWYN and J. L. TEARLE entitled "The performance of aircraft camera lenses (*Proc. Phys. Soc.*, **58,** 493 (1946)) . . . 155

Reviews of books 157

Part 2. 1 *March* 1947

R. WEIL. A note on the intermittency effect 161

C. GURNEY. Delayed fracture in glass 169

B. BLEANEY, J. H. N. LOUBSER and R. P. PENROSE. Cavity resonators for measurements with centimetre electromagnetic waves 185

H. N. V. TEMPERLEY. The behaviour of water under hydrostatic tension: III . 199

H. A. ELLIOTT. An analysis of the conditions for rupture due to Griffith cracks . 208

J. BROSSEL. Multiple-beam localized fringes: Part I.—Intensity distribution and localization 224

J. BROSSEL. Multiple-beam localized fringes: Part II.—Conditions of observation and formation of ghosts 234

PAGE

J. C. Evans. The determination of thermal lagging times 242
F. R. N. Nabarro. Dislocations in a simple cubic lattice 256
Maurice Milbourn. A note on the effect at the cathode of an arc between copper electrodes 273
R. F. Hanstock. Damping capacity, strain hardening and fatigue . . . 275
J. M. Cowley and A. L. G. Rees. Refraction effects in electron diffraction . . 287
O. Klemperer. Electron optics and space charge in strip-cathode emission systems 302
T. Smith, F.R.S. A series for the stationary value of a function 323
Reviews of books 326

Part 3. 1 *May* 1947

L. F. Bates and A. S. Edmondson. The adiabatic temperature changes accompanying the magnetization of cobalt in low and moderate fields 329
E. Glückauf. Investigations on absorption hygrometers at low temperatures . 344
G. G. Macfarlane. A theory of flicker noise in valves and impurity semiconductors 366
D. K. C. MacDonald and R. Fürth. Spontaneous fluctuations of electricity in thermionic valves under retarding field conditions 375
R. Fürth and D. K. C. MacDonald. Statistical analysis of spontaneous electrical fluctuations 388
Discussion on the foregoing papers by G. G. Macfarlane (p. 366) and R. Fürth and D. K. C. MacDonald (pp. 375 and 388) 403
F. C. Frank. The mass of the neutrino 408
R. E. Peierls. What experiments are needed in fundamental physics? . . . 412
B. Bleaney and R. P. Penrose. Collision broadening of the inversion spectrum of ammonia at centimetre wave-lengths. I.—Self-broadening at high pressure . 418
R. C. Brown. The fundamental concepts concerning surface tension and capillarity 429
E. E. Vago and R. F. Barrow. Ultra-violet absorption band-systems of PbO, PbS, PbSe and PbTe 449
D. V. Gogate and P. D. Pathak. The Landau velocity of liquid helium II . . 457
Sir Edward Appleton, F.R.S. and R. Naismith. The radio detection of meteor trails and allied phenomena 461
Mary P. Lord, A. L. G. Rees and M. E. Wise. The short-period time variation of the luminescence of a zinc sulphide phosphor under ultra-violet excitation . 473
Addendum to Discussion on the paper by R. F. Schmid and L. Gerö entitled "Photo-chemical decomposition of CO" (*Proc. Phys. Soc.* **58**, 701 (1946)) . 502
Obituary notices:
Sir James Jeans, O.M., F.R.S. 503
Thomas Howell Laby, M.A., Sc.D., F.R.S. 506
George Blackford Bryan, O.B.E., D.Sc., M.I.E.E. 508
William Barron Coutts, M.A., B.Sc. 508
Reviews of books 509

Part 4. 1 *July* 1947

W. J. G. Beynon. Some observations of the maximum frequency of radio communication over distances of 1000 km. and 2500 km. 521

PAGE

DISCUSSION on papers by Sir E. APPLETON and W. J. G. BEYNON, "The application of ionospheric data to radio communication problems" (*Proc. Phys. Soc.*, **59**, 58 (1947)); W. J. G. BEYNON, "Oblique radio transmission in the ionosphere and the Lorentz polarization term" (*Phys. Proc. Soc.*, **59**, 97 (1947)); and W. J. G. BEYNON, this part, p. 521 534

A. E. BATE and M. E. PILLOW. Mean free path of sound in an auditorium . . 535

T. B. RYMER and C. C. BUTLER. Determination of the crystal structure of gold leaf by electron diffraction 541

R. DONALDSON. A colorimeter with six matching stimuli 554

N. E. G. HILL. The recognition of coloured light signals which are near the limit of visibility 560

N. E. G. HILL. The measurement of the chromatic and achromatic thresholds of coloured point sources against a white background 574

E. A. NEUMANN. A time micrometer of high accuracy 585

J. G. HOLMES. Colorimetry in the glass industry 592

S. P. SINHA. Ultra-violet bands of Na_2 610

W. D. ALLEN and J. L. SYMONDS. Experiments in multiple-gap linear acceleration of electrons 622

C. GURNEY. Thermodynamic relations for two phases containing two components in equilibrium under generalized stress 629

E. G. DYMOND. The Kew radio sonde 645

M. L. OLIPHANT, J. S. GOODEN and G. S. HIDE. The acceleration of charged particles to very high energies. 666

J. S. GOODEN, H. H. JENSEN and J. L. SYMONDS. Theory of the proton synchrotron 677

G. WYLLIE. The hole theory of diffusion 694

W. B. MANN and L. G. GRIMMETT. The Imperial College high-voltage generator . 699

E. WOLF and W. S. PREDDY. On the determination of aspheric profiles . . 704

Corrigenda 711

Reviews of books 711

Part 5. 1 *September* 1947

D. BRUNT, F.R.S. Some physical aspects of the heat balance of the human body . 713

MAX JAKOB. Some investigations in the field of heat transfer 726

J. D. CRAGGS and W. HOPWOOD. Ion concentrations in spark channels in hydrogen. 755

J. D. CRAGGS and W. HOPWOOD. Electron/ion recombination in hydrogen spark discharges 771

ROBERT WEIL. The variation of the reflectivity of nickel with temperature . . 781

H. O. W. RICHARDSON. Magnetic focusing between inclined plane pole-faces . 791

H. CRAIG. The production of a uniform magnetic field over a specific volume by means of twin conducting circular coils 804

H. G. W. HARDING and R. B. SISSON. Distribution coefficients for the calculation of colours on the C.I.E. trichromatic system for total radiators at 1500–250–3500° K., and 2360° K. (C=14 350) 814

J. W. DUNGEY and CATHERINE R. HULL. Coaxial electron lenses 828

T. SMITH, F.R.S. Note on aplanatic lenses for unit magnification . . . 844

J. S. HEY, S. J. PARSONS and F. JACKSON. Reflexion of centimetric electro-magnetic waves over ground, and diffraction effects with wire-netting screens . . 847

J. S. HEY and G. S. STEWART. Radar observations of meteors 858

PAGE

C. M. G. Lattes, P. H. Fowler and P. Cuer. A study of the nuclear transmutations of light elements by the photographic method 883
Discussion on paper by E. F. Daly and G. B. B. M. Sutherland entitled "An infra-red spectroscope with cathode-ray presentation" (*Proc. Phys. Soc.*, **59**, 77 (1947)) 901
Corrigenda 901
Reviews of books 902

Part 6. 1 *November* 1946

R. E. Siday. The optical properties of axially symmetric magnetic prisms : Part 1. 905
J. Hamilton. The theory of radiation damping 917
W. J. Bates. A wavefront-shearing interferometer 940
R. C. Faust and S. Tolansky. A transparent-replica technique for interferometry. 951
C. Domb. The theory of an oscillator coupled to a long feeder, with applications to experimental results for the magnetron 958
F. Hoyle. On the formation of heavy elements in stars 972
R. Latham. Nuclear magnetic moments 979
A. S. Edmondson. The matching of high-frequency transmission lines using a frequency-variation method 982
J. P. Andrews. Thermoelectric power of cadmium oxide 990
A. L. G. Rees. The calculation of potential-energy curves from band-spectroscopic data 998
A. L. G. Rees. Note on the interpretation of the visible absorption spectrum of bromine 1008
D. F. Rushman and M. A. Strivens. The effective permittivity of two-phase systems 1011
D. G. Avery and R. Witty. Diffusion pumps : a critical discussion of existing theories 1016
R. Eisenschitz. The effect of temperature on the thermal conductivity and viscosity of liquids 1030
Discussions 1036
Obituary notices :
Friederich Paschen 1040
Paul Langevin 1041
John Henry Strong 1042
Reviews of books 1042
Index to Volume **59** 1049
Index to Reviews of books, Volume **59** 1056
Proceedings at the meetings, Session 1946–47 viii
Report of Council for the year 1946 xvii
Report of the Honorary Treasurer for the year 1946 xxi

PROCEEDINGS AT THE MEETINGS OF THE PHYSICAL SOCIETY

SESSION 1946-47

15 *May* 1946*

The fourth meeting of THE LOW-TEMPERATURE GROUP, in the Department of Chemistry Technology, Imperial College, London S.W. 7. Sir Alfred Egerton was in the Chair.

The High-pressure and Low-temperature Laboratories were visited, and the following lectures were delivered:

" Storage of liquefied gases ", by Sir Alfred Egerton and M. Pearse;

" Liquefaction in relation to gas manufacture ", by T. A. Hall.

* The record of this meeting was inadvertently omitted from the *Proceedings*, **58**, page ix (November 1916).

---

13 *September* 1946

The twenty-fourth meeting of THE OPTICAL GROUP, at Imperial College, London S.W. 7. Instr.-Capt. T. Y. Baker was in the Chair.

The following papers were read and discussed:

" The performance of aircraft camera lenses ", by E. W. H. Selwyn and J. L. Tearle;

" The effect of the angle of incidence of the exposing light rays upon the resolving powers of photographic materials ", by J. M. Gregory;

" The Ross 25-inch *F*/6·3 Express E.M.I. lens ", by O. G. Hay and G. A. Richmond.

---

3 *October* 1946

The twenty-ninth meeting of THE COLOUR GROUP, at the Lighting Service Bureau, Electric Lamp Manufacturers' Association, London W.C. 2. Dr. R. K. Schofield was in the Chair.

The following papers were read and discussed:

" The recognition of coloured light signals which are near the limit of visibility ", by N. E. G. Hill;

" The measurement of the chromatic and achromatic thresholds of coloured point sources against a white background ", by N. E. G. Hill.

---

3 *October* 1946

Science Meeting, at the Science Museum, London S.W. 7. The President, Professor D. Brunt, was in the Chair.

The following were elected to Fellowship, the last four being transferred from Student Membership: Raymond Ernest Adlington, Arthur Jerrard Booth, William John Rawson Calvert, Gordon James Chamberlin, Rowland Braddock Clayton, Alan Hugh Cook, Pierre Fleury, Mohamed Gharid Abd El-Galil, René Léon Gauthier, Brian Michael Green, Kariamanikkam Srinivasa Krishnan, Polidoor August Cyriel Mortier, Josiah Percy Reed, Charles Sadron, Arthur Henry Sully; John Geoffrey Dawes, Arthur Dennis Kent, Bernard John Perrett, Fáthi Asad Qaddura.

It was announced that the Council had elected the following to Student Membership: John Frederick Archard, Bernard George Childs, Geoffrey Howard Cockett, Alfred William Crook, Leo Jung, Richard Peter Martin, Alfred Maurice Mendoza, Colin John Moore, Walter Eric Spear, Stanley Alfred Tibbs, Richard Wilson, Dennis Ralph Workman.

The thirtieth Guthrie Lecture was delivered by Professor Max Jakob (Chicago), who took as his subject " Some investigations in the field of heat transfer ".

---

7 *October* 1946

Science Meeting, at the Royal Institution, London W. 1. The President, Professor D. Brunt, was in the Chair.

The following were elected to Fellowship, the last three being transferred from Student Membership: Robert James Benzie, Jacob Clay, Walter Henry Cole, Allen Dinsdale, Joseph William Fisher, Mahmoud Hessaby, James Stanley Hey, David Barrable Hodges, Arthur Magnus John Janser, Enaf Morrice Job, Otto Klemperer, Wilfred Bennett Lewis, Aubrey William Pryce, George Ormerod Rawstron, Darcy Walker, Charles George Webb, Jerzy Wyhowski; Kenneth Robert Atkins, Robert Frank Crocombe, Wilfrid John Mellors.

The third Rutherford Memorial Lecture was delivered by Professor M. L. E. Oliphant (Birmingham), whose subject was " Rutherford and the modern world ".

---

13 *November* 1946

The fifth meeting of THE LOW-TEMPERATURE GROUP, at the Science Museum, London S.W. 7. Sir Alfred Egerton was in the Chair.

A discussion on " The cultivation of a thermodynamic outlook " was held, the opening paper being by Sir Charles Darwin.

The Meeting was preceded by the first *Annual General Meeting of the Low-Temperature Group* for the presentation of the Committee's report for 1946 and for the election of Officers and Committee for 1946–47.

---

15 *November* 1946

Science Meeting, at the Science Museum, London S.W. 7. Mr. T. Smith, Past-President, was in the Chair.

Arthur John King and Walter William Wright were elected to Fellowship.

It was announced that the Council had elected the following to Student Membership: Maurice John Bott, David St. Pierre Bunbury, John Michael Tate Clark, David Ian Clough, Alan Cyril Coates, Brian Anthony Collett, Julian Cedric Cook, Colin Armstrong Crofts, David Elwyn Davies, Rudolph Dehn, Kenneth Henry Dixey, James Percival Dixon, James Edmund Gibbs, Richard Henry Eldridge, Geoffrey Charles Fletcher, John William Charles Gates, Harold William Greensmith, Alec Geoffrey Hester, Peter Edward Hodgson, Ronald Michael Horsley, Peter Andrew Reay Kinghorn, Atley Mortimer Lawrence, Harry Malbon, Leonard Mandel, Thomas Alan Margerison, Peter Frederick Mariner, Maurice George Milford, George Desmond Morgan, John Harold Denis Morris, Michael Louis Nunn, Arthur Beck Parker, Evan Thomas de la Perrelle, Hubert Lloyd Roberts, Dennis William Sciama, Richard Ingram Shewell, Josef Kazimierz Skwirzynski, John Smith, Peter David Southgate, Priscilla Halford Strange, Alan Howard Ward, George Alan Wilkins, Marjorie Elizabeth Woolcock, Kenneth Herbert Reginald Wright.

A demonstration of neon stroboscopic lamps was given by L. F. Berry (Ferranti Ltd.).

The following papers were read and discussed:

" Electron optics and space charge in strip-cathode emission systems ", by O. Klemperer;

" The application of ionospheric data to radio communication problems ", by Sir Edward Appleton and W. J. G. Beynon;

" Oblique radio transmission in the ionosphere and the Lorentz polarization term ", by W. J. G. Beynon;

" Some observations of the maximum frequency of radio communication over distances of 1000 km. and 2500 km.", by W. J. G. Beynon.

---

22 *November* 1946

The twenty-fifth meeting of THE OPTICAL GROUP, at Imperial College, London S.W. 7. Instr.-Capt. T. Y. Baker was in the Chair.

A paper on " The diffraction theory of the phase-contrast test " was read by E. H. Linfoot.

Demonstrations of new phase-contrast microscopes were given by E. W. Taylor and A. Hughes, the latter of whom also showed two phase-contrast films.

---

6 *December* 1946

Science Meeting, at the Science Museum, London S.W. 7. The President, Professor D. Brunt, was in the Chair.

The following were elected to Fellowship: Robert Wirenfeldt Asmusson, Edwin Richard Collins, Leonard George Grimmett, Edward Hubert Linfoot, James William McHugo (transferred from Student Membership), Francis Hugh Campbell Morgan Minnis, Barry Joseph Cornelius O'Sullivan, Philip Litherland Teed, John Cecil Thomas, George Leonard Turney.

It was announced that the Council had elected the following to Student Membership: Norman Adams, Douglas Russell Bennett, Albert John Bird, Richard Arthur Brown, Robert Gordon Cawthorne, Ronald William Cornish, Laurie Cotton, Michael Daniels, Philip Davis, John Sydney Dugdale, David Noel Ferguson Dunbar, Herbert Sigmund Eisner, Robert Donald Bruce Fraser, Peter Gay, Geoffrey Shakleton Hawkes, John E. Hooper, Neil Howells, Donald Gordon Neal Hunter, Robert Edward Jones, Mary Eveline Manson, Norman Owen Matthews, R. Furley Mellor, Leo Melzer, Peter William Mummery, Terence Edwin Olver, Kenneth Robert Pallant, Alfred John Parker, David Ambrose Edward Roberts, John Francis Lloyd Roberts, William Kenneth Roberts, Stanley George Saint, Max Smoulevitz, Geoffrey Frank Snelling, Ganapathy Srikantia Shrikantia, Eric Swindlehurst, Desmond Philip Cameron Thackeray, John Ronald Thomas, Peter Ewart Watson, James Norwood Whyte, G. N. Wood, Raymond William Henry Wright.

A lecture on "Fundamental concepts concerning surface tension and capillarity" was delivered by R. C. Brown, and was followed by an informal discussion.

---

19 *December* 1946

The thirtieth meeting of THE COLOUR GROUP, in the Library of the Royal Society of Arts, Adelphi, London W.C. 2. Dr. R. K. Schofield was in the Chair.

The recently published Report on *Defective Colour Vision in Industry* was introduced by W. D. Wright and H. M. Cartwright and afterwards discussed.

---

20 *December* 1946

Science Meeting, at the University of Birmingham. The President, Professor D. Brunt, was in the Chair.

The following were elected to Fellowship: Cedric John Brown, Claude James Bradish (transferred from Student Membership), William Harold Joseph Childs, Karl George Emeléus, Derek Henry Fender, Hamilton Hartridge, Leo Kowarski.

A Conference on "Fundamental problems in modern physics" was held, the following papers being read and discussed:

"What experiments are needed in fundamental physics?", by R. E. Peierls;

"The design of proton synchrotrons", by J. S. Gooden;

"Some practical aspects of synchrotron design", by D. W. Fry;

"Recent experiments on highly ionized gases", by J. Sayers (read by P. B. Moon).

"Extra-terrestrial nuclear reactions", by F. Hoyle.

The cyclotron and synchrotron under construction in the Nuffield Laboratory were inspected.

---

10 *January* 1947

Science Meeting, at the Science Museum, London S.W. 7. The President, Professor D. Brunt, was in the Chair.

The following were elected to Fellowship: William Douglas Allen, Ernst Billig, Percy Hatfield, George Pearce (transferred from Student Membership), Arkadiusz Piekara, John Eric Roberts.

It was announced that the Council had elected the following to Student Membership: Bernarr Francis Atherton, Adeline Mary Dale, Edwin Roland Dobbs, Peter Derek Fochs, Norman Frank Godwin, Lewis John Griffiths, Graham Hulse, Frederick Arthur Jacobs,

Geoffrey Knight, David Ross Knowles, Sheila Bernice Lataste, Edward Thornton Linacre, John Howard McGuire, Gordon Eric Mawer, Eric Rees Pearcey, Lloyd Julian Perper, Patrick Reginald Dan Pomeroy, Michael Shepherdson, Alec Geoffrey Thompson, Kenneth Alan Turner, Frank Lewis Ward, Eric Roy Wooding.

The twenty-third (1946) Duddell Medal was presented to Karl Weissenberg, who afterwards gave a lecture on his work on x-ray goniometers.

The second (1946) Charles Vernon Boys Prize was presented to R. W. Sutton, who afterwards gave a brief account of his work on receiving valves and cathode-ray tubes (local oscillators and the skiatron) for radio and radar.

---

22 *January* 1947

The sixth meeting of THE LOW-TEMPERATURE GROUP, at the Science Museum, London S.W. 7. Sir Alfred Egerton was in the Chair.

A lecture on "The separation of oil gases" was delivered by M. Ruhemann.

---

29 *January* 1947

The thirty-first meeting of THE COLOUR GROUP, at the Lighting Service Bureau of the Electric Lamp Manufacturers' Association, London W.C. 2. Dr. R. K. Schofield was in the Chair.

A lecture on "The use of colour in factories" was delivered by H. D. Murray and was followed by an informal discussion.

---

31 *January* 1947

Science Meeting, at the Science Museum, London S.W. 7. The President, Professor D. Brunt, was in the Chair.

The following were elected to Fellowship: Cecil Benjamin Allsopp, Harold Frederick Cook, Richard Heinrich Herz, Christopher Guy Ardern Hill (transferred from Student Membership), Ernst Jacobus Marais, Desmond Ramsay Rexworthy, John Howard Richards.

It was announced that the Council had elected the following to Student Membership: Donald Geoffrey Avery, John Sidney Blakemore, Roger Alec Bones, Peter Edward Douglas, Robert Lockhart Graham, Dennis John Hine, Geoffrey Munday, Gordon Arthur John Orchard, Walter Steckelmacher, Peter Millner Stott.

The following papers were read and discussed:

"The radio detection of meteor trails and allied phenomena", by Sir Edward Appleton and R. Naismith;

"Radar observations of meteors", by J. S. Hey and G. S. Stewart;

"A study of transient radar echoes from the ionosphere, including observations made during the solar eclipse of July 1945", by E. Eastwood and K. A. Mercer;

"Radio echoes from meteors", by A. C. B. Lovell, C. J. Banwell and J. A. Clegg.

A gramophone record of "whistling meteors" was heard, with a description by G. R. M. Garrett.

---

14 *February* 1947

The twenty-sixth meeting of THE OPTICAL GROUP, at Imperial College, London S.W. 7. Professor L. C. Martin was in the Chair.

Reports on the Réunion d'Opticiens held in Paris in October 1946 were presented and discussed:

"Physical optics and technical applications", by L. V. Chilton, H. H. Hopkins and J. S. Preston;

"Visual photometry, colorimetry and physiological optics", by W. S. Stiles.

---

19 *February* 1947

Inaugural meeting of THE ACOUSTICS GROUP, in the Jarvis Hall of the Royal Institute of British Architects, London W. 1. Mr. H. L. Kirke was in the Chair.

A draft constitution of the Group was discussed and adopted. The Chairman, Vice-Chairman, Secretaries and Committee of the Group for 1947–48 were elected.

An address on " The contribution of acoustical science to allied studies " was delivered by Dr. Alex Wood.

---

21 *February* 1947

Science Meeting, at the Science Museum, London S.W. 7. The President, Professor D. Brunt, was in the Chair.

The following were elected to Fellowship, the last fifteen being transferred from Student Membership: Thomas Edward Allibone, Montague Ernest Clarkson, Georges Louis Charles Léon Dejardin, Horace Edward Dohoo, Patrick Joseph Doyle, Charles Geoffrey Blythe Garrett, Anna Modayil Mani, Thomas Harold Oddie, Charles Robert Oswin, James Eldred Skewes, Norman Thompson, Meredith Wooldridge Thring, Reginald Harbert Wadie; Alan Barker, Bruce Alexander Bilby, Michael Davis, Eric Foster, Robert Louis Gordon, Ralph Percy Hudson, John Fletcher Hutton, Raymond Douglas Lowde, Gordon Kingsley Monks, Geoffrey Harwood Moss, Ralph William Nicholls, Kenneth John Veryard, Bernard Miles Wheatley, Garth Angus Wheatley, Peter Stephen Williams.

The following papers were read and discussed:

" Spontaneous fluctuations of electricity in thermionic valves under retarding field conditions ", by D. K. C. MacDonald and R. Fürth;

" Statistical analysis of spontaneous electrical fluctuations ", by R. Fürth and D. K. C. MacDonald;

" Theory of flicker noise in valves and impurity semi-conductors ", by G. G. Macfarlane.

---

26 *February* 1947

The seventh meeting of THE LOW-TEMPERATURE GROUP, at the Science Museum London S.W. 7. Sir Charles Darwin was in the Chair.

A lecture on " The graphical and geometrical representation of thermodynamic functions " was delivered by N. R. Kuloor.

---

19 *March* 1947

Science Meeting, at the University of Manchester. Professor P. M. S. Blackett was in the Chair.

A Conference was held on " Meteors, comets and the radio detection of meteors", the following papers were read and discussed:

" Meteors ", by P. J. M. Prentice;

" Comets ", by J. G. Porter;

" Experimental work on the radio echoes from meteors ", by A. C. B. Lovell;

" The theory of meteor ionization ", by N. Herlofson.

The Conference was followed on 20 March by a visit to the Jodrell Bank Experimental Station of the University.

---

19 *March* 1947

The eighth meeting of THE LOW-TEMPERATURE GROUP, at the Clarendon Laboratory, Oxford. Sir Charles Darwin was in the Chair.

A survey of the work of the Low-Temperature Department of the Laboratory was given by Professor F. Simon, and was followed by a tour of the Laboratory and short discussions of selected topics.

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21 *March* 1947

The twenty-seventh meeting of THE OPTICAL GROUP, at Imperial College, London S.W. 7. Professor L. C. Martin was in the Chair.

The following papers were read and discussed:

"The physical properties of glass", by W. C. Hynd;

"The degree of inhomogeneity of optical glass and some aspects of its bearing on optical performance", by T. H. Wang.

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26 *March* 1947

The thirty-second meeting of THE COLOUR GROUP, in the Lecture Room of The Royal Photographic Society, London S.W. 7. Mr. J. G. Holmes was in the Chair.

A paper on "A statistical investigation of some aspects of colour harmony", by M. E. Clarkson, O. L. Davies and T. Vickerstaff was read and discussed.

The meeting was preceded by the sixth *Annual General Meeting of The Colour Group*, for the presentation of the Committee's report on the work of the Group in 1946–47 and for the election of Officers and Committee for 1947–48.

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28 *March* 1947

Extraordinary General Meeting, at Imperial Collge, London S.W. 7. The President, Professor D. Brunt, was in the Chair.

The following Special Resolution was passed unanimously:

That the Articles of Association be altered by the substitution of the following Article for the present Article 36:

"36. Any Fellow may at any time compound for all annual subscriptions thereafter to become due from him. The composition fee shall be the product of the amount of the annual subscription payable by such Fellow and the factor appropriate to the age of such Fellow at his last birthday before his giving notice of desire to compound, such factor being determined according to the following Table:—

TABLE

Age	Factor	Age	Factor	Age	Factor	Age	Factor
21	30	31	25	41	19·5	51	12·5
22	29·5	32	24·5	42	19	52	12
23	29	33	24	43	18	53	11
24	28·5	34	23·5	44	17·5	54	10
25	28	35	23	45	17	55	9·5
26	27·5	36	22·5	46	16	56	8·5
27	27	37	22	47	15·5	57	7·5
28	26·5	38	21·5	48	15	58	7
29	26	39	21	49	14	59	6
30	25·5	40	20	50	13·5	60	5"

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28 *March* 1947

Science Meeting, at Imperial College, London S.W. 7. The President, Professor D. Brunt, was in the Chair.

The following were elected to Fellowship, the last seven being transferred from Student Membership: Constance E. Arregger, John Oscar Guy Barrett, Robert Benedict Bourdillon, Donald William Fry, Reinhold Fürth, John Lloyd Jones, William Noel Sproson, Alexander Stewart; Kenneth Henry Clarke, George William Greenlees, Oliver Samuel Heavens, Ronald Mayoh, Kenneth Elmslie Munn, Derek John Price, Richard Wallace Whorlow.

It was announced that the Council had elected the following to Student Membership: Sultana Z. Ali, Frank Arthur Chappell, Charles John Gravett, John Stephen Halliday, John Douglas Jolley, George Harry King, Har Nath, James Robert Rogers, David Wilkie.

The following papers were read and were followed by a short discussion on the fracture of solids:

" Delayed fracture in glass ", by C. Guiney;

" Extension of Griffith's theory of rupture to three dimensions ", by R. A. Sack.

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23 *April* 1947

Science Meeting, at Imperial College, London S.W. 7. Professor E. N. da C. Andrade, Foreign Secretary and Past President, was in the Chair.

The following were elected to Fellowship, the last fourteen being transferred from Student Membership: Harendra Kumar Acharya, Benjamin Chapman Browne, Archibald Hugh Campbell, John Drummond Craggs, Colin Allen Haywood, Lachlan Mackinnon, Kurt Sitte, Frank Alan Underwood, Harish Chandra Verma; Peter Andrews, George Cowper, James Maurice Daniels, Brian Philip Day, Stephen Gerhard Friedrich Frank, John Hodgkinson, Alfred Ernest Kay, Thomas Rundell Lomer, James Nicol, Charles Arthur Padgham, George Sparling Parry, Eric Robinson, Mary Lois Tiffany (*née* Joyce), Edith Eva Vago.

It was announced that the Council had elected the following to Student Membership: Raymond Alfred Allen, Edward James Burge, James Charles Ezekiel Button, Werner Freitag, Michael James Hart, Frank Elsden Neale.

A discussion on " The spark discharge " was held, the opening paper being read by L. B. Loeb (Berkeley, California), and other papers by T. E. Allibone, J. M. Meek and J. D. Craggs.

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8 *May* 1947

Annual General Meeting, at Imperial College, London S.W. 7. The President, Professor D. Brunt, was in the Chair.

The minutes of the two General Meetings, held on 16 May 1946, were read and confirmed.

The Reports of the Council and the Honorary Treasurer and the Annual Accounts for 1946 were adopted.

The Officers and Council and the Auditors for 1947–48 were elected.

Votes of thanks were accorded to the Rector and Governing Body of Imperial College and Sir George Thomson, the Managers of the Royal Institution, the Director of the Science Museum, and The Electric Lamp Manufacturers' Association for excellent accommodation at meetings; to the Royal Commission for the Exhibition of 1851 and Dr. Evelyn Shaw for the office and library accommodation at 1 Lowther Gardens, Prince Consort Road, London S.W. 7; to Dr. A. F. C. Pollard for preparing the U.D.C. Index Slips for the *Proceedings*; and to the retiring Officers and Council.

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8 *May* 1947

Science Meeting, at Imperial College, London S.W. 7. The newly elected President, Professor G. I. Finch, was in the Chair.

The following were elected to Fellowship: John Flavell Coales, William Evans Hugh Humphreys, Harold Lister Kirke, James Stewart McPetrie, Egon Orowan, Albert Shaw, John Harry Walrond Simmons, Robert Allan Smith, Robert Tucker, Victor Frederick George Tull, Walter Weinstein.

The retiring President, Professor D. Brunt, delivered his address on " Some aspects of the heat balance of the human body ".

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9 *May* 1947

The twentiy-eighth meeting of The Optical Group, at Imperial College, London S.W. 7. Professor L. C. Martin was in the Chair.

A paper on " Photographic resolving power of lenses " was read by Mr. E. W. H. Selwyn, and was followed by an informal discussion.

The meeting was preceded by the fifth *Annual General Meeting of The Optical Group*, for the presentation of the Committee's report on the work of the Group in 1946–47 and for the election of the Officers and Committee for 1947–48.

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30 *May* 1947

Science Meeting, at Imperial College, London S.W. 7. The President, Professor G. I. Finch, was in the Chair.

The following were elected to Fellowship, the first two being transferred from Student Membership: Robert Alan Croft, John Gorham; Willis Jackson, Frederick Wilson Jones, Donald Burgess McNeill, Ronald James Post, Edward Eric Shelton, Jack Vennart.

It was announced that the Council had elected the following to Student Membership: Alan George Clegg, David Walter Evans, Joseph Abraham Franks, John Lewis Fyson, Walter Grattidge, John Hampson, Kenneth Gerald Hinton, Michael Harold Kreps, John Rowland Mallard, William Alan Runciman, Norman Chester Underwood.

The following papers were read and discussed:

" Thermoelectric power of cadmium oxide ", by J. P. Andrews;

" The optical properties of axially symmetric magnetic prisms ", by R. E. Siday;

" Coaxial electron lenses ", by J. W. Dungey and Miss C. R. Hull.

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4 *June* 1947

The thirty-third meeting of The Colour Group, at the Lighting Service Bureau of the Electric Lamp Manufacturers' Association, London W.C. 2. Mr. J. G. Holmes was in the Chair.

A paper on " The colour temperature of light sources " was read by H. G. W. Harding, and was followed by an informal discussion.

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26 *June* 1947

The first meeting of The Acoustics Group, at the Royal Institute of British Architects, London W. 1. Mr. H. L. Kirke was in the Chair.

A symposium on " Sound absorption and reverberation " was held, the opening papers of the morning and afternoon sessions being:

" Panel absorbents of the Helmholtz type ", by P. V. Bruel (Gothenberg, Sweden);

" Reverberation time as an index of room performance ", by J. Moir.

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27 *June* 1947

Extraordinary General Meeting, at Imperial College, London S.W. 7. The President, Professor G. I. Finch, was in the Chair.

The President made a statement on the Council's proposals to raise the annual subscriptions in 1948 and to replace " The Proceedings of the Physical Society " by " The Magazine of Physics ", and submitted the following Special Resolution:

That the Articles of Association of the Society be altered as follows:

(i) Article 11, by substituting

(*a*) in line 1, for the word " two " the word " three ";

(*b*) in line 4, for the words " one guinea a year " the words " two guineas a year in accordance with Article 31 ";

(*c*) in line 6, for the words " the Proceedings " the words " The Magazine of Physics ".

(ii) Article 31, by substituting

(*a*) in line 2, for the words " two guineas or one guinea " the words " three guineas or two guineas "; and

(*b*) in lines 11 and 12, for the words " two guineas or may pay an annual subscription of one guinea " the words " three guineas or may pay an annual subscription of two guineas ".

(iii) Article 42, by substituting for the words " ten shillings and sixpence " the words " fifteen shillings ".

(iv) Article 44, by substituting for the words " the Proceedings " in line 1 the words " The Magazine of Physics ".

(v) Article 81, by substituting for the words " the Proceedings of the Society " in line 4 the words " The Magazine of Physics ".

After a discussion, in which an amendment to raise the Fellowship subscription to four guineas instead of three guineas was defeated, clauses (i) (*a*) (*b*), (ii) and (iii) were passed unanimously, and clauses (i) (*c*), (iv) and (v) were withdrawn by the Chairman.

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27 *June* 1947

Science Meeting, at Imperial College, London S.W. 7. The President, Professor G. I. Finch, was in the Chair.

The following were elected to Fellowship: James Wynne Dungey (transferred from Student Membership), Eric Harold Harden, David William Hills, Cyril Alfred Hogarth, Harold George Jerrard, Harry Jones, William George Kennings Kilbourn, Stanley Lucas, Norman Veall.

It was announced that the Council had elected Gerd Martin Nathan and Deryck Arthur John Walliker to Student Membership.

A demonstration of a model representing the action of a full-wave rectifier was given by D. J. Morgan.

A lecture on " Applications of multiple-beam interferometry to surfaces and thin films " was delivered by S. Tolansky, and was followed by an informal discussion.

REPORT OF COUNCIL FOR THE YEAR ENDED 31 DECEMBER 1946

INTRODUCTORY AND GENERAL

The year under review was marked by the resumption of the Society's Exhibition of Scientific Instruments and Apparatus, by the first presentation of the Holweck Prize, by a highly successful International Conference, and by an unprecedented increase of the Fellowship. Unfortunately, however, there was a large financial deficit—a sharp reminder that the present rates of annual subscription are far too low in comparison with the services rendered by the Society.

Comparison of this Report with that for 1945 will reveal a marked increase in the volume of the Society's publications ; the barrier which prevents further expansion is lack of paper, caused not only by the inadequacy of the official allowance but also by the difficulty of obtaining it from the manufacturers.

The Council acknowledges with gratitude the continued generosity of the Royal Commission for the Exhibition of 1851 and its kindly Secretary, Sir Evelyn Shaw, in providing the accommodation at 1 Lowther Gardens. The re-equipment and re-furnishing of the rooms have been continued, though by no means completed.

The Council also records its thanks to the Managers of the Royal Institution, to the Director of the Science Museum in whose lecture theatres most of the Science Meetings were held, and to the Rector and Governing Body of Imperial College and Professors Sir George Thomson and H. V. A. Briscoe for the great privilege of holding the Exhibition in the Physics and Chemistry Departments of the College.

MEETINGS

An Annual General Meeting and an Extraordinary General Meeting were held at the Royal Institution on 16 May 1946, the former for the presentation of the Reports of the Council and the Honorary Treasurer for 1945 and the election of the Officers and Council for 1946–47, and the latter for the temporary suspension of Article 36.

Eleven Science Meetings, in addition to those of the three Groups, were held during the year, six at the Science Museum, three at the Royal Institution, one at Imperial College and one in the Physics Department of the University of Birmingham.

The Birmingham Meeting, the first of a new series of meetings to be held at Universities outside London, was the occasion of a successful Conference on " Fundamental Problems in Modern Physics ". One of the London meetings was held jointly with the Royal Meteorological Society for a Conference on " Meteorological Factors in Radio-Wave Propagation ", a report of which will be published during the Summer of 1947. Of the other nine meetings in London, three were devoted to Papers and Demonstrations, two to Lecture Surveys in continuation of the series initiated during the War and four to Special Lectures and functions noted in the following paragraphs (see Guthrie Lecture, Rutherford Lecture and Holweck Prize).

EXHIBITION OF SCIENTIFIC INSTRUMENTS AND APPARATUS

The Society's 30th Exhibition at Imperial College was held on 1–3 January 1946 and was opened by the Rt. Hon. Sir Stafford Cripps, President of the Board of Trade. At that time, within a few months of the end of the war, the conditions for the preparation and organization of the Exhibition could hardly have been less favourable to the exhibitors, to the Society's small office staff, or to the printers.

Nevertheless, the high reputation established by the pre-war Exhibitions was maintained or even surpassed. The Exhibition is undoubtedly a function of acknowledged pre-eminence in this country, and its Catalogue is widely acclaimed as a valuable work of reference. The attendance was unexpectedly and embarrassingly large—nearly double that in 1938 or 1939. A first edition of the Catalogue was disposed of within a few hours of the opening, and, in view of the heavy demand for copies both in this country and overseas, a second edition was produced later in the year. Entirely new problems of organization have been presented to the Exhibition Committee, and the work for the 31st (1947) Exhibition was started in good time.

INTERNATIONAL CONFERENCE

By arrangement with Sir Lawrence Bragg, an International Conference on " Fundamental Particles and Low-Temperature Physics " was held at the Cavendish Laboratory, Cambridge, on 22–27 July 1946. The attendance was so large that many members of the Society who wished to attend were unable to obtain accommodation and admittance. Those present included guests and visitors from Canada, U.S.A., U.S.S.R., India, China and most European countries. The opening address was by Professor Niels Bohr (Copenhagen). One day was devoted to papers on, and an inspection of, the work of the Cavendish and Royal Society Mond Laboratories and to the ceremonial opening of the Austin Wing by the Rt. Hon. Sir John Anderson. The papers read and discussed at the Conference are to be published as two Special Reports of the Society, which should be ready towards the end of 1947.

MEMORIAL LECTURES AND AWARDS

Guthrie Lecture

At the Science Museum on 3 October Professor Max Jakob (Illinois Institute of Technology, Chicago) delivered the 30th Guthrie Lecture, the subject of which was " Some investigations in the field of heat transfer " (*Proceedings*, **59** (1947), p. 726).

Rutherford Memorial Lecture

The 2nd (1944) Rutherford Lecture, postponed on account of the long absence of Professor J. D. Cockcroft from this country during and after the War, was delivered by him at the Science Museum on 8 February 1946, the title being " Rutherford : life and work after the year 1919 ; with personal reminiscences of the Cambridge period " (*Proceedings*, **58** (1946), p. 625).

The 3rd (1946) Lecture was delivered at the Royal Institution on 7 October by Professor M. L. E. Oliphant, who took as his subject " Rutherford and the modern world " (*Proceedings*, **59** (1947), p. 144).

Duddell Medal and Charles Vernon Boys Prize

The 23rd (1946) Duddell Medal was awarded to Dr. Karl Weissenberg (Shirley Institute of the Cotton Research Association) in recognition of his work on x-ray goniometers, and the 2nd (1946) Charles Vernon Boys Prize to Mr. R. W. Sutton (Services Electronics Research Laboratory, Admiralty) for his work on receiving valves and cathode-ray tubes (local oscillators and the skiatron) for radio and radar. The presentations were unavoidably postponed to a date in 1947.

Holweck Prize

The Council made the first (1946) award of the Prize to Professor Charles Sadron (University of Strasbourg) in recognition of his work on the mechanical and optical properties of liquids, and had the pleasure of welcoming to London for the presentation ceremony Professor P. Fleury and Professor G. A. Boutry, as representatives of the Société Française de Physique, and Mme Sadron. The valuable assistance of the British Council in the accommodation and entertainment of the Society's guests is gratefully acknowledged. In addition to founding the Médaille Holweck, to be awarded to each prize-winner, the Société Française has presented to the Physical Society a bronze plaque of Fernand Holweck for the Council Room. The Officers and Council record their great appreciation of this generous gesture by their French colleagues.

PUBLICATIONS

Proceedings

During the year the official allowance of paper for the *Proceedings* was increased to the amount used annually before the war. The larger quantity enabled the Society to increase the size of Vol. **58** (1946) and the number of copies printed, but it is quite inadequate to the needs of a Society which has doubled its membership and its outside subscribership in less than a decade. It has been decided to discontinue the publication of Universal Decimal Classification Index Slips at the end of Vol. **58** (1946), as the information given in the Slips is now readily available in *Physics Abstracts*. The Council again thanks Professor A. F. C. Pollard for his valuable services in the preparation of the Slips since they were first supplied in 1937.

In connexion with the International Conference reported above, a meeting of physicists from European countries brought out clearly the difficulty felt on the Continent owing to the lack of a journal in which short papers on new work could receive rapid publication. Dis-

cussions have been in hand during the year to consider whether the nature, and indeed the title, of the Society's *Proceedings* could be modified so as to meet this demand. A definite decision will be reached and announced during 1947.

Reports on Progress in Physics

The long-awaited Volume **10** (1944–45) and Volume **4** (1937, reprinted) appeared in September 1946, but the number of copies delivered by the end of the year was far short of the large number of orders already entered and still being received. Volumes **7, 8** and **9** were in very heavy demand and the stock of each was almost entirely disposed of by the end of the year. The office of the American Institute of Physics has continued to help the Society by supplying copies of the *Reports* to American physicists. The preparation of Volume **11** (1946–47) was begun under the General Editorship of Dr. W. B. Mann and was transferred to a new Editorial Board upon his departure to Chalk River, Ontario.

Special Reports

The *Report on Defective Colour Vision in Industry*, on the preparation of which a Sub-Committee of the Colour Group was engaged for several years, appeared towards the end of 1946, and is in great demand. The congratulations and thanks of the Society are due to the members of the Committee upon the successful completion of its valuable work. Mention has already been made of other Special Reports which are in active preparation, namely, those on the Conferences on Meteorological Factors on Radio-Wave Propagation, Fundamental Particles and Low-Temperature Physics.

REPRESENTATION ON OTHER BODIES

The following appointments of representatives in 1946 are reported :—

National Committee for Physics : Profressor G. I. Finch, Professor M. L. E. Oliphant, Mr. R. S. Whipple.

National Committee for Scientific Radio : Mr. R. Naismith, Mr. C. W. Oatley.

Committee of Management of Science Abstracts : Mr. J. H. Awbery, Dr. A. G. Gaydon, Dr. A. C. Menzies, Dr. D. Roaf.

Committee for the Jubilee of the Discovery of the Electron : Dr. J. H. Brinkworth, Dr. W. Jevons, Dr. H. Shaw.

Celebration (in Paris, 29–31 October 1946) of the Jubilee of the Discovery of Radioactivity : Professor H. R. Robinson.

OBITUARY

The Council records with regret the deaths of the following Fellows :—Mr. J. L. Baird, Professor G. B. Bryan, Mr. J. B. Butler Burke, Mr. W. B. Coutts, Captain E. A. Hoghton, Sir James Jeans, Professor T. H. Laby, Professor P. Langevin, Dr. J. J. Manley, Mr. R. W. D. Mayall, Professor H. C. Plummer (Honorary Fellow of the Optical Society), Dr. M. Poser, Dr. J. Schofield and Mr. J. J. Steward, and the death of a Student Member, Mr. R. E. Hickman. The Society was represented by the President at the funeral of Sir James Jeans, and by Professor J. B. Bernal at the ceremony of homage to Professor Langevin in Paris.

MEMBERSHIP

Roll of Membership		Hon. Fellows	Hon. Fellows, Optical Society	*Ex-officio* Fellows	Fellows	Student Members	Total
Totals, 31 Dec. 1944		10	1*	4	1167	275	1457
Changes during 1946	Newly elected				139	53	
	Transferred				46 } 185	46	
	Deceased		1		13	1 } 57	
	Resigned				6	8	
	Lapsed				1 } 20	2	
	Net increase		−1		165	−4	160
Totals, 31 Dec. 1946		10	0	4	1332	271	1617

* Excluding one who is also an Honorary Fellow of the Physical Society (in previous column).

As the above table shows, the sixteen-hundred mark was passed during the year. The increase in the Fellowship and in the total membership was more than double that in 1945 and far greater than in any previous year ; it is satisfactory to note that the increase was largely accounted for by new elections to Fellowship, and the transfer from Student Membership was not far behind the record for 1945, while the new elections to Student Membership just failed to make up for the large transfer. The relevant facts for the last seven years are as follows :—

Year	1940	1941	1942	1943	1944	1945	1946
Net increase in total Membership	−14	6	107	73	63	75	160
Net increase in Fellowship	−25	37	45	34	55	80	165
Newly elected Fellows	20	28	57	42	56	56	139
Transfer from Student Membership	6	13	20	22	23	52	46

GROUPS

Colour Group

At the Sixth Annual General Meeting of the Group, which was held at the Science Museum on 13 March 1946, Dr. R. K. Schofield and Dr. W. D. Wright were re-elected as Chairman and Honorary Secretary, respectively, and the Committee for 1946–47 was elected.

Five Science Meetings took place in 1946, and are briefly recorded in the *Proceedings*.*

The *Report on Defective Colour Vision in Industry*, prepared by one of the two Sub-Committees, was published in December 1946 and was the subject of a Discussion at one of the Science Meetings and of a broadcast talk by Dr. Wright. It has received excellent press notices and the sales of copies in this country and overseas are highly satisfactory.

The report of the other Sub-Committee, on Colour Terminology, is nearly ready for the printers.

Optical Group

The Group held its Fifth Annual General Meeting at Imperial College on 26 April 1946, when Instr.-Capt. T. Y. Baker and Mr. E. W. H. Selwyn were re-elected as Chairman and Honorary Secretary and the Committee for 1946–47 was elected.

During the year six Science Meetings were held, particulars of which are given in the *Proceedings*.* Several of the papers read at the meetings have been published in the *Proceedings* † and others will appear in due course.

Low-Temperature Group

During 1946, the first year of the Group's activities, four Science Meetings were held, as noted in the *Proceedings*.*

The Second Annual General Meeting of the Group took place at the Science Museum on 13 November 1946, when the Officers and Committee for 1946–47 were appointed ; Sir Alfred Egerton and Sir Charles Darwin were re-elected as Chairman and Vice-Chairman, respectively, and Mr. G. G. Haselden was elected as Honorary Secretary.

Membership

The membership of the three Groups on 31 December 1946 was as follows :—

	Colour	Optical	Low-Temperature
Members of the Physical Society	101	191	38
Members of participating bodies	74	73	33
Members of subscribing firms	17	105	
Other Members	16	12	14
Totals	208	381	85

* *Proceedings*, **58** (1946), pp. viii–xi; and **59** (1947), pp. viii–x.

† *Proceedings*, **58** (1946), pp. 65, 493, 759, 769; and **59** (1947), pp. 41, 560, 574.

REPORT OF THE HONORARY TREASURER FOR THE YEAR ENDED 31 DECEMBER 1946

For the first time since 1938 the accounts show an unwelcome excess of expenditure over income. The total expenditure (£10,424) and the total income (£8940) were higher than in 1945 by £5473 and £3620 respectively.

The large increase (£3695) in the cost of publications is due to several causes: the expansion of the *Proceedings* (in the size of the volume and in the number of copies printed), the production of two volumes of *Reports on Progress in Physics* (the reprinted Vol. IV and the new Vol. X) and the *Report on Defective Colour Vision*, and the rising costs of printing and paper. Administration expenditure (£2898) was double that in 1945, but this is not surprising in view of the post-war expansion in the activities of the Society and the necessary increase of office staff and equipment. Expenses in connection with meetings (which now include the cost of printing for meetings, hitherto shown as a separate item) show a relatively small increase (£77).

Purchases of office furniture and equipment during the year were met partly by the Herbert Spencer Bequest, which has now been fully spent, and partly from the general fund.

There are considerable increases of income from all four of the main sources (subscriptions, sales, advertisements and dividends), but they have not kept abreast of the rising expenditure.

The large net deficit (£1484) is rather misleading, since the accounts do not include the value of the stock of publications, which was abnormally large at the end of the year. Nevertheless, comparison with the satisfactory balances in the accounts for 1944 and 1945 clearly indicates the need for a larger annual income; this can only be secured by increases of annual subscriptions, retail sale prices and advertisement rates.

A publications grant of £450 by the Royal Society is gratefully acknowledged. Donations amounting to £1840 for the International Conference at Cambridge in July 1946 are also gratefully acknowledged; the balance of £639 shown in the Balance Sheet will defray part of the cost of producing the Reports of the Conference.

Investments increased in total value by £1937, of which £1000 was a new investment in 3% Defence Bonds and the remaining £937 represents appreciation of earlier investments.

(Signed) H. SHAW,
Honorary Treasurer.

21 *March* 1947.

SPECIAL FUNDS

W. F. STANLEY TRUST FUND

	£ s. d.		£ s. d.
Carried to Balance Sheet	259 0 0	£300 Southern Railway Preferred Ordinary Stock	199 0 0
		£442 Southern Railway Deferred Ordinary Stock	60 0 0
	£259 0 0		£259 0 0

DUDDELL MEMORIAL TRUST FUND

Capital

	£ s. d.		£ s. d.
Carried to Balance Sheet	374 0 0	£400 3½% War Loan Inscribed "B" Account	374 0 0

Revenue

	£ s. d.		£ s. d.
Honorarium	20 0 0	Balance on 31 December 1945	15 9
Medal and Certificate	6 5 0	Interest on War Loan	14 0 0
Balance carried to Balance Sheet	1 0 9	Grant from General Fund	12 10 0
	£27 5 9		£27 5 9

SPECIAL FUNDS (*contd.*)

HERBERT SPENCER LEGACY

	£ s. d.		£ s. d.
Expenditure on Furniture and Equipment during the year	85 4 3	Balance on 31 December 1945	85 4

CHARLES CHREE MEDAL AND PRIZE FUND

Capital

	£ s. d.		£ s. d.
Balance carried to Balance Sheet	1865 16 4	Balance on 31 December 1945	1865 16

Revenue

	£ s. d.		£ s. d.
Balance carried to Balance Sheet	81 17 0	Balance on 31 December 1945	12 19
		Interest on Investments	68 17
	81 17 0		£81 17

CHARLES VERNON BOYS PRIZE FUND

Capital

	£ s. d.		£ s. d.
Balance carried to Balance Sheet	900 0 0	£1132 16*s.* 10*d.* 2½% Consols "B" Account	900 0

Revenue

	£ s. d.		£ s. d.
Balance on 31 December 1945	17 7 1	Interest on Investment	28 6
Prize	26 5 0	Balance carried to Balance Sheet	16 10
Certificate	1 5 0		
	£44 17 1		£44 17

HOLWECK PRIZE FUND

	£ s. d.		£ s. d.
Prize	100 0 0	Balance on 31 December 1945	887 4
Expenses	39 1½ 0	Interest on Investment	24 1
Balance carried to Balance Sheet	796 12 2	Grant from General Fund	25 0
	£936 6 2		£936 6

ADDENBROOKE BEQUEST

Capital

	£ s. d.		£ s. d.
Balance carried to Balance Sheet	337 0 0	£384 6*s.* 7*d.* 2½% Consols "D" Account	337 0

Revenue

	£ s. d.		£ s. d.
Book Plates	13 3 6	Balance on 31 December 1945	9 12
Balance carried to Balance Sheet	6 0 6	Interest on Investment	9 12
	£19 4 0		£19 4

LIFE COMPOSITION FUND ON 31 DECEMBER 1946

	£ s. d.
19 Fellows paid £10	190 0 0
1 Fellow paid £15	15 0 0
17 Fellows paid £21	357 0 0
57 Fellows paid £31 10*s.* 0*d.*	1795 10 0
	£2357 10 0

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31 DECEMBER 1946

1945 £	Expenditure	£ s. d.	£ s. d.
	To		
801	"Science Abstracts"		798 5 9
2105	"Proceedings"	3901 17 6	
21	"Reports on Progress in Physics"	1755 17 7	
	Special Publications	163 8 4	
			5821 3 5
335	Postage on Publications and General Correspondence		562 17 1
93	Agenda Papers and Notices		
95	Expenses at Meetings		264 13 4
52	Honoraria to Special Lecturers		78 15 0
	Administration Expenses:		
1373	Secretarial and Clerical Assistance and Office Expenses		2800 19 7
	Grant to Holweck Prize Fund	25 0 0	
75	Grant to Duddell Memorial Fund	12 10 0	
			37 10 0
	Furniture and Office Equipment	144 14 10	
	Less transfer from Herbert Spencer Legacy	85 4 3	
			59 10 7
869	*Balance, being excess of Income over Expenditure, carried to General Fund.*		
£5819			£10,423 14 9

1945 £	Income	£ s. d.	£ s. d.
	By		
	Subscriptions:		
78	Entrance Fees	128 2 0	
2175	Fellows	2509 13 9	
144	Student Members	184 5 0	
29	Colour Group	26 5 0	
50	Optical Group	70 17 0	
	Low-Temperature Group	11 19 0	
142	For "Science Abstracts" and Advance Proofs	180 7 0	
			3111 8 9
	Sales:		
1328	"Proceedings"	1663 3 6	
495	"Reports on Progress in Physics"	1148 6 1	
89	Special Publications	339 2 4	
			3150 11 11
448	Advertisements in "Proceedings"		1061 19 8
371	Dividends from Investments		396 11 5
20	Transfer from Life Composition Fund of amounts paid by Fellows now deceased		84 0 0
450	Publications Grant by the Royal Society		450 0 0
	30th Exhibition (balance)		685 3 8
	Balance, being excess of Expenditure over Income, carried to General Fund		1483 19 4
£5819			£10,423 14 9

BALANCE SHEET AS ON 31 DECEMBER 1946

LIABILITIES	£	s.	d.	£	s.	d.
Sundry Creditors				1194	13	10
Life Compositions:						
As on 31 December 1945	1906	0	0			
Add Payments during year	535	10	0			
	2441	10	0			
Less Transfer to Income and Expenditure Account.	84	0	0			
				2357	10	0
Subscriptions received in advance:						
Members	54	2	6			
Publications	141	9	8			
				195	12	2
SPECIAL FUNDS:						
W. F. Stanley Trust Fund	259	0	0			
Duddell Memorial Trust Fund	375	0	9			
Charles Chree Medal and Prize Fund	1947	13	4			
Charles Vernon Boys Prize Fund	883	9	3			
Holweck Prize Fund	796	12	2			
Addenbrooke Bequest	343	0	6			
				4604	16	0
GENERAL FUND:						
As on 31 December 1945	7757	10	6			
Less Balance of Income and Expenditure Account	1483	19	4			
				6273	11	2
Cambridge Conference Balance, carried forward				639	2	2
				£15,263	5	4

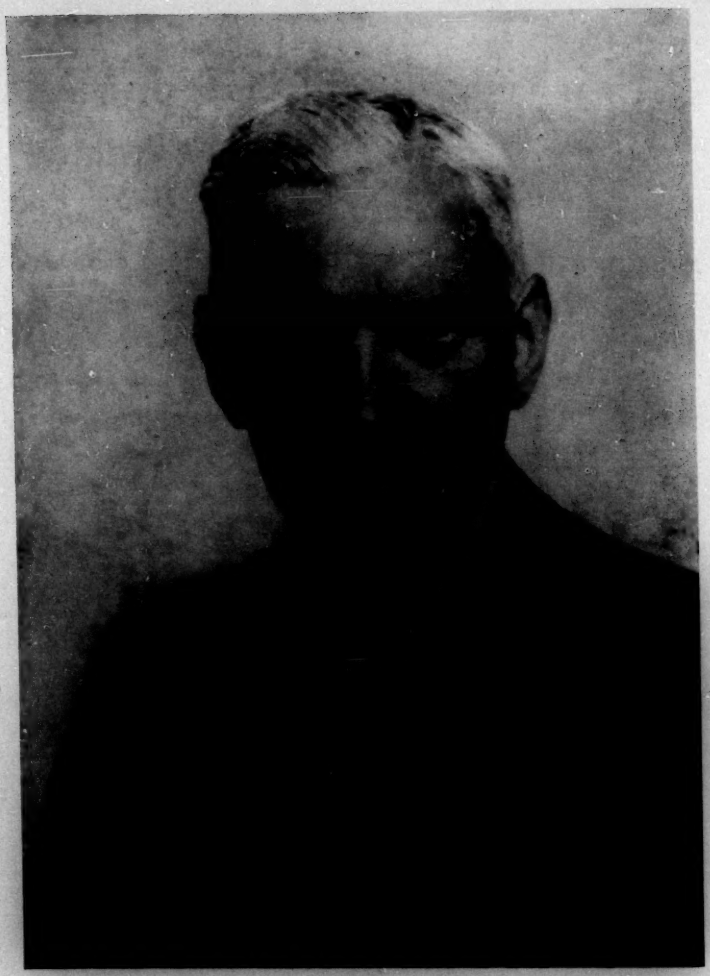
ASSETS	£	s.	d.	£	s.	d.
Investments at market value on 31 December 1939 or cost:—						
W. F. STANLEY TRUST FUND:						
£300 Southern Railway Preferred Ordinary Stock.	199	0	0			
£442 Southern Railway Deferred Ordinary Stock.	60	0	0			
				259	0	0
DUDDELL MEMORIAL FUND:						
£400 3½% War Stock				374	0	0
CHARLES CHREE MEDAL AND PRIZE FUND:						
£784 4% Funding Stock	839	0	0			
£1500 2½% Consols	1027	10	0			
				1866	10	0
CHARLES VERNON BOYS PRIZE FUND:						
£1132 16*s.* 10*d.* 2½% Consols				900	0	0
HOLWECK PRIZE FUND:						
£775 3% Defence Bonds				775	0	0
ADDENBROOKE BEQUEST:						
£384 6*s.* 7*d.* 2½% Consols				337	0	0
GENERAL FUND:						
£2100 2½% Consols	1437	10	0			
£1750 3½% War Stock	1636	0	0			
£500 4% Funding Stock	535	0	0			
£400 3% Lancaster Corporation	364	0	0			
£399 L.M.S. 4% Debentures	355	0	0			
£1000 L.M.S. 4% Preference Stock	595	0	0			
£500 L.N.E.R. 4% Debentures	412	0	0			
£150 S.R. 5% Debentures	171	0	0			
£2100 3% Defence Bonds	2100	0	0			
£1000 3% Savings Bonds	1000	0	0			
				8605	10	0
				13,117	0	0*
Dividends due on Investments				123	17	2
Inland Revenue—Income Tax recoverable for 1946				51	1	4
Subscriptions due				54	5	0
Sundry Debtors				621	0	3
Stock of Paper and Binding Material				227	18	6
31*st Exhibition* (1947):—*Expenditure to date*				23	17	0
Cash in Post Office Savings Bank Account	984	18	3			
Cash at Bank	14	17	0			
Cash in hand	46	10	10			
				1046	6	1
				£15,263	5	4

* Market value on 31 December 1946: £17,701.

We have audited the above Balance Sheet and have obtained all the information and explanations we have required. We have verified the bank balances and the Investments. In our opinion such Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of the Society's affairs according to the best of our information and the explanations given to us and as shown by the books of the Society.

KNOX, CROPPER & Co.,
Chartered Accountants

SPENCER HOUSE, SOUTH PLACE, E.C.2.
20th March 1947



[*Photo : Elliot and Fry.*

PROFESSOR D. BRUNT, M.A., SC.D., F.R.S.,
President of the Physical Society, 1945–47.

[*Frontispiece*